REMARKS

In the Final Action dated September 1, 2009, claims 1-7, 11 and 15-21 were pending. Claims 11 and 17-21 were withdrawn from consideration. Claims 15-16 were allowed. Claims 1-3 and 6-7 were rejected. Claims 4-5 were objected to as dependent on a rejected base claim, but would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

This Response addresses each of the Examiner's rejections and objections. Applicants therefore respectfully submit that the present application is in condition for allowance, or at least in a better condition for appeal. Favorable consideration of all pending claims and entry of the instant Response are therefore respectfully requested.

Restriction Requirement

The Final Action vacated, in part, the restriction requirement issued on October 30, 2006, and rejoined the remaining five peptides (SEQ ID NOS: 5-6 and 9-11) and the genus recited in claim 1. Consequently, claim 5 was rejoined in the examination. The Action further indicated that the method claims, namely claims 11 and 17-21 then pending, will be rejoined upon the allowability of the product claims to which they depend.

Amendments to Claims

Claims 1 and 2 have been amended to clarify the claim language, in accordance with the Examiner's suggestions.

Claim 4 has been amended to reintroduce SEQ ID NO: 7 and SEQ ID NO: 8, which were inadvertently deleted in the previous amendment without prejudice. SEQ ID NOS: 7-8 represent specific peptides falling within the genus characterized in claim 1. Because the genus

of claim 1 has been found to be patentable over the prior art, peptides represented by SEQ ID NOS: 7-8 are also patentable.

Withdrawn claims 11 and 20-21 have been canceled, without prejudice.

Withdrawn claim 17 has been amended to replace "inflammation" with "inflammatory pain", as supported by the specification, e.g., page 19, line 31.

New claim 22 is added to depend from claim 17 and specifically delineates that the method is for the treatment and control of neuropathic pain. Claim 18 has been amended to depend from new claim 22 and to delineate specific types of neuropathic pain.

No new matter is introduced by the foregoing amendments. In any event, the amendments are believed to address all the rejections raised in the Final Action. Therefore, entry of the amendments is therefore respectfully requested.

Non-Statutory Double Patenting

Claims 1-3 were provisionally rejected on the ground of non-statutory obviousness type double patenting as allegedly unpatentable over claims 2, 5, 6, 12, 13, 15-21, 38-41, 43, 45, 47 and 49 of co-pending application No. 10/537,088.

Applicants respectfully submit that the '088 application has issued as U.S. Patent No. 7,507,717 B2, with sixteen (16) claims. Applicants intend to file a terminal disclaimer to overcome a properly raised non-statutory double patenting rejection once the claims are found to be otherwise allowable.

35 U.S.C. §112, Second Paragraph

Claims 1-3 and 6-7 were rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite. The Examiner provided suggested wordings for claim 3, and apparently intended to refer to claim 1.

In response, Applicants have amended claims 1 and 2 consistent with the Examiner's suggestions. It is respectfully submitted that the claims, as amended, are not indefinite.

Rejoinder of Method Claims

The Examiner indicated that the method claims, now claims 17-19 and 22, will be rejoined upon the allowability of the product claims to which they depend. The Examiner has asked Applicants to identify support in the specification or literature that the peptides as claimed (including the native and modified peptides bearing a core structure) are known or have been shown to treat the diseases, as claimed.

Independent claim 17 is directed to a method of treating or controlling "acute, chronic and/or neuropathic pain, migraine or inflammatory pain" using an effective amount of an isolated, synthetic or recombinant χ-conotoxin peptide, as characterized in claims 1-5 or 15-16. Claim 22 depends from claim 17 and is specifically directed to the treatment and control of neuropathic pain. Claim 18 depends from claim 22 and delineates specific types of neuropathic pain, i.e., neuropathic pain "associated with surgery (post operative pain), gut, cancer, diabetic, phantom limb, or nerve damage". It is respectfully submitted that as supported by the specification and available literature, those skilled in the art are fully enabled to practice the claimed methods, without undue experimentation.

For example, the specification describes experiments which show that Xen2174 (the amino acid of which is set forth in SEQ ID NO: 4) effectively treated neuropathic pain in a rat model. See, e.g., pages 35-39 of the specification.

The effectiveness of Xen2174 in treating and controlling pain is also documented by the attached supporting literature references. For example, Nielsen et al. (*Pain* 118: 112-124, 2005) (**Exhibit 1**) demonstrates the anti-allodynic effects of Xen2174 and suggests that Xen2174 is a promising therapeutic candidate for patients with neuropathic pain (see, e.g., the abstract). This publication also demonstrates the comparison of Xen2174 with morphine, showing morphine has a ceiling effect (PWT to ≈ 15g and no higher) whereas Xen2174 has greater efficacy and longer duration of action in the model of neuropathic pain (see particularly page 121, left column). Obata et al. (*Pain* 113: 271-276, 2005) (**Exhibit 2**) demonstrates the direct action of Xen2174 on post-surgical pain states (see, e.g., the abstract). Stearns et al. (poster presented at 12th World Congress of Pain in Galsgow (Aug 17-22, 2008)) (**Exhibit 3**) clearly demonstrates the utility of Xen2174 in oncology patients with intractable pain.

Applicants further submit that it is known that χ-conotoxin peptides are allosteric NE (norepinephrine) re-uptake inhibitor, and disturbances in the functioning of NET (norepinephrine transporter) are associated with various pathological states including depression, congestive heart failure, among other. See, e.g., Sharpe et al., *J. Biological. Chem.* 278(41) pp 40317-40323, (2003) (**Exhibit 4**), first paragraph after abstract. The use of NE re-uptake inhibitors or TCA's (tri-cyclic antidepressants) in the treatment of pain has been documented in the literature. For example, Mantyh et al. (*Nature Review* 2: 201-209, 2002) (**Exhibit 5**), Table 1, lists antidepressants (acting as inhibitors of serotonin and NE re-uptake) as indicated in neuropathic pain and musculoskeletal pain, and as among current therapies used to treat cancer pain. This

reference also acknowledges a component of cancer pain is classified as neuropathic pain. Koch et al. (*Drugs* 2009 69(1) pp 1-19) (**Exhibit 6**) demonstrates the use of antidepressants (acting as transporter re-uptake inhibitors) for the treatment of migraine. Kalso et al. (*Pain* 2004, 112: 372-380) (**Exhibit 7**) analyzed data received from clinical trials where opioids (e.g., morphine) were used as treatments for non-cancer chronic pain, including phantom limb pain (see Table 1) and describes phantom limb pain as neuropathic pain. Notably, Xen2174 has been shown to be effective in the treatment of neuropathic pain and proving superior to morphine in that same model. Hence, it is believed that Xen2174 would be effective in treating phantom limb pain. Thus, the use of the other NET inhibitors (including antidepressants), which act on NET (same target as χ-conotoxin peptides) in the treatment and control of pain, provide additional support for the use of χ-conotoxin peptides in the treatment and control of pain, as presently claimed.

Therefore, it is respectfully submitted that claims 17-19 and 22 are fully enabled, and allowance of these claims is also respectfully requested.

Conclusion

In view of the foregoing amendments and remarks, it is firmly believed that the present application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

Xiaochun Zhu
Registration No. 56,311

Scully, Scott, Murphy & Presser, P.C.
400 Garden City Plaza-Suite 300
Garden City, New York 11530
(516) 742-4343
XZ:eh
Encl.: Exhibits 1-7.